

CLAIMS

What is claimed is:

1. A wafer boat (for holding a semiconductor wafer during wafer processing at elevated temperatures,) the wafer boat having first and second ends and comprising:
  - a) a plurality of slots positioned between the first and second ends (for receiving semiconductor wafers therein) each of the slots comprising first and second upper support guides to maintain the semiconductor wafers in a vertical orientation; and
  - b) a lower grooved portion upon which a portion of the wafer is in contact, and which supports the weight of the wafer when the wafer is positioned thereon, the grooved portion having an arcuate configuration which, at semiconductor processing temperatures of between approximately 1000 °C to 1400 °C, substantially conforms to the portion of the wafer supported thereon.
2. The wafer boat of claim 1, wherein the boat is fabricated from silicon carbide.
3. The wafer boat of claim 2, wherein the silicon carbide comprises recrystallized silicon carbide.
4. The wafer boat of claim 1, configured to hold at least one semiconductor wafer having a diameter of about 300mm.
5. The wafer boat of claim 1, defining an angle  $\alpha$  between a first radius of the wafer extending from the center of the wafer to the periphery of the wafer proximate the first upper support guides and a second radius extending vertically downward from

the center of the wafer to a point on the periphery of the wafer which corresponds to the center of the grooved portion, and wherein the angle  $\alpha$  is in the range of 10 - 80 degrees.

6. The wafer boat of claim 5, wherein the angle  $\alpha$  is approximately 37 degrees.
7. The wafer boat of claim 1, wherein the boat comprises slots to support up to 25 comb/sub semiconductor wafers.)
8. The wafer boat of claim 1, wherein the boat has a thickness of not less than 5 mm. ✓
9. The wafer boat of claim 1, further comprising one or more windows positioned not more than 10 mm from the first and second ends of the boat. *at least* *more strict operating*
10. The wafer boat of claim 9, wherein the one or more windows increase radiation distribution about the wafers in the boat when the boat undergoes processing at elevated temperatures. *at least one* *gentle ok*
11. A wafer boat for holding a semiconductor wafer during wafer processing at elevated temperatures, the wafer boat having first and second ends and comprising:
  - a) a plurality of slots positioned between the first and second ends (for receiving semiconductor wafers therein), each of the slots comprising first and second upper support guides to maintain the semiconductor wafers in a vertical orientation;
  - b) a lower grooved portion upon which a portion of the wafer is in contact, and which supports the weight of the wafer when the wafer is positioned thereon, the grooved portion having an arcuate configuration which, at semiconductor

processing temperatures of between approximately 1000 °C to 1400 °C,  
substantially conforms to the portion of the wafer supported thereon; and  
c) *at least one* one or more windows positioned not more than 10 mm from the first and  
second ends of the boat. *miss operative structure*

12. The wafer boat of claim 11, wherein the boat is fabricated from silicon carbide.
13. The wafer boat of claim 12, wherein the silicon carbide comprises recrystallized silicon carbide.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100